

What is claimed is:

1. An implantable cardiac device, comprising:
 - a sensing channel for sensing an electrogram signal and generating a chamber
 - 5 sense when the electrogram signal exceeds a specified threshold value;
 - circuitry for measuring and collecting time intervals between successive chamber senses and storing the collected intervals as a discrete RR interval signal, filtering the RR interval signal into defined high and low frequency bands, and determining the signal power of the RR interval signal in each of the low and high
 - 10 frequency bands, referred to LF and HF, respectively; and,
 - circuitry for computing an LF/HF ratio and detecting cardiac ischemia if the LF/HF ratio exceeds a predetermined ratio threshold value; and
 - a controller for storing detection of cardiac ischemia.
- 15 2. The device of claim 1 further comprising;
 - a pacing channel for pacing a cardiac chamber; and,
 - wherein the controller is further programmed to deliver paces to the cardiac chamber in accordance with a programmed pacing mode.
- 20 3. The device of claim 2 wherein the controller is programmed to alter a rate at which paces are delivered after detecting ischemia.
4. The device of claim 1 wherein the circuitry for computing an LF/HF ratio and detecting cardiac ischemia further comprises detecting ischemia if the LF/HF ratio
- 25 exceeds a predetermined rate of change.
5. The device of claim 1 wherein the controller is further programmed to log a detection of cardiac ischemia as a clinically significant event.

6. The device of claim 2 further comprising an exertion level sensor and wherein the controller is further programmed to:

sense an exertion level and map the sensed exertion level to a particular sensor-indicated rate with a rate-response curve, wherein the sensor-indicated rate is limited
5 to a specified maximum sensor-indicated rate;

adjust an escape interval in order to enforce the sensor-indicated rate; and,

decrease the specified maximum sensor-indicated rate if a change in the LF/HF ratio indicative of cardiac ischemia is detected.

10 7. The device of claim 6 wherein the controller is further programmed to adjust the response factor of the rate-response curve so that a particular exertion level particular is mapped to a lower sensor-indicated rate if a change in the LF/HF ratio indicative of cardiac ischemia is detected.

15 8. The device of claim 2 further comprising:

an exertion level sensor;

wherein the controller is further programmed to pace the heart in a rate-adaptive pacing mode by sensing an exertion level, map the sensed exertion level to a particular sensor-indicated rate with a rate-response curve, and adjust an escape
20 interval in order to enforce the sensor-indicated rate; and,

wherein the controller is programmed to discontinue rate responsive pacing upon detection of ischemia.

9. The device of claim 2 wherein the paced heart chamber is a ventricle and the
25 programmed pacing mode is an atrial tracking mode such that a ventricular pace is delivered after expiration of an atrio-ventricular interval without a ventricular sense, the atrio-ventricular interval being started by an atrial sense, and further wherein the controller is programmed to decrease a maximum tracking rate that limits the rate at which ventricular paces can be delivered in response to atrial senses if cardiac
30 ischemia is detected.

10. The device of claim 1 wherein the controller is programmed to detect ischemia if the LF/HF ratio exceeds the specified threshold and if a change in a recorded electrogram indicative of cardiac ischemia is detected.

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11. The device of claim 2 wherein the controller is programmed to decrease a maximum rate at which paces are delivered upon detection of ischemia.

12. The device of claim 1 wherein the RR intervals are intervals between
10 ventricular senses.

13. The device of claim 12 further comprising circuitry for detecting ectopic ventricular beats and filtering the RR intervals before and after such beats to derive the RR interval signal.

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14. The device of claim 12 further comprising circuitry for resampling the RR interval signal to equalize the time intervals between values of the RR interval signal.

15. A method, comprising:

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sensing an electrogram signal from an implanted electrode;

generating a chamber sense when the electrogram signal exceeds a specified threshold value;

collecting RR time intervals between successive chamber senses;

filtering the RR interval signal into defined high and low frequency bands;

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determining the signal power of the RR interval signal in each of the low and high frequency bands, referred to LF and HF, respectively;

computing an LF/HF ratio;

detecting cardiac ischemia if the LF/HF ratio exceeds a predetermined ratio threshold value.

16. The method of claim 15 further comprising delivering paces to a cardiac chamber in accordance with a programmed pacing mode and rate.

17. The method of claim 16 wherein the pacing rate is altered after detecting
5 ischemia.

18. The method of claim 16 wherein the maximum rate at which paces are delivered upon detection of ischemia is decreased.

10 19. The method of claim 15 further comprising logging detection of cardiac ischemia as a clinically significant event.

20. The method of claim 15 further comprising:

sensing an exertion level and mapping the sensed exertion level to a particular
15 sensor-indicated rate with a rate-response curve, wherein the sensor-indicated rate is limited to a specified maximum sensor-indicated rate;

adjusting an escape interval used to deliver paces in order to enforce the sensor-indicated rate; and,

decreasing the specified maximum sensor-indicated rate if a change in the
20 LF/HF indicative of cardiac ischemia is detected.

21. The method of claim 20 wherein the response factor of the rate-response curve is adjusted so that a particular exertion level particular is mapped to a lower sensor-indicated rate if a change in the LF/HF ratio indicative of cardiac ischemia is detected.